airservices

Airservices Submission to CASA Preliminary Review of Hobart Airspace

Proposal for a Class C Aerodrome and Terminal Area at Hobart

Version 1.0

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1 Context

Hobart aerodrome (YMHB) is currently operating as a D Class aerodrome and approach service with overlying Class C enroute airspace during published hours of operation. Cambridge aerodrome (YCBG) is an uncertified, uncontrolled aerodrome situated one nautical mile to the north west of YMHB.

With more than 2.7 million passengers flying into YMHB and YCBG, YMHB has continued to exceed the Class C airspace review criteria threshold listed in the Australian Airspace Policy Statement 2018 since the last airspace review undertaken in 2017.

With the continued exceedance of this indicator, and other considerations, the Civil Aviation Safety Authority (CASA) is conducting a Preliminary Airspace Review of the airspace within 35 Nautical Miles (NM) of YMHB. Airservices Australia, as the Air Navigation Service Provider, welcomes the opportunity to make this submission to CASA to provide our feedback on safety, efficiency and identified improvements to the current airspace surrounding YMHB.

1.1 Modernising Regional Airspace

Currently, regional airspace in Australia is complex with five different air traffic control tower configurations which creates inconsistencies for pilots operating multiple flight sectors. The different tower configurations also result in the need for localised air traffic control endorsements which limits the opportunity for gaining efficiencies from generic endorsements which supports more efficient use of resources. Additionally, the level of service is not consistently aligned to the level of risk and there is a need to better leverage off available surveillance coverage.

To address these and other challenges, Airservices Australia is undertaking an Airspace Modernisation Program (AMP) to enhance the safety and efficiency of Australian controlled airspace. The AMP aims to deliver a series of enhancements over the next five years to improve service outcomes for the aviation industry through national standardisation and by leveraging the benefits of increased surveillance coverage, while ensuring that the safety of air navigation remains our most important consideration.

AMP Tranche 1 changes were implemented in May 2019 and involved transfer control of Class C from non-surveillance regional Towers to enroute controllers in either the Melbourne or Brisbane Air Traffic Services Centre (ATSCs), with surveillance coverage being provided from existing surveillance equipment and Automatic Dependent Surveillance – Broadcast (ADS-B) equipage of aircraft).

The AMP Tranche 2 proposals that will increase enroute Class E services nationwide and run a Class E trial at a non-towered airport (Ayers Rock), have been submitted to CASA as Airspace Change Proposals (ACP) and are currently under review.

The third tranche of changes under the AMP, which includes a proposal to change Class C enroute airspace over nine Class D regional aerodromes to Class E enroute airspace, is currently in the planning stage and will deliver consistency across regional airspace at areas not as busy or complex as Hobart has become.

In keeping with the design philosophy of matching growth with an appropriate service level, it is proposed that Hobart will be upgrade to a higher level of service and be similar in design, safety and efficiency that is as growth resilient as that of services currently delivered at Canberra, Cairns and Gold Coast. This acknowledges the application of Class C approach services over Class C tower services equally in these

situations having: a single, generic service configuration; optimised and flexible ATC resources; consistent risk to service level application; and maximised surveillance coverage.

1.2 AMP Tranche 3 Feedback on Hobart

In April-May 2019, Airservices consulted with industry as part of the proposed AMP Tranche 3 changes. Feedback received from airline operators, General Aviation (GA) and industry during Airservices consultation indicates a preference for a Class C aerodrome and approach service at YMHB.

Airservices own internal analysis of Hobart equally draws the conclusion that activity has continued to steadily grow with increased passenger numbers, expected future demand and growth after airport constraints are removed (apron improvements and tug purchases), and the overall density and complexity of the mix of aircraft within the total annual movements of 59,000 at YMHB and YCBG needs an increased service level.

As the traffic volume continues to grow at YMHB and YCBG, and the diversity of aircraft performance and operators increase, the level of risk at YMHB and YCBG also increases. The addition of a surveillance service, utilised by a new approach unit and a Class C tower at YMHB will provide significant safety and efficiency benefits, mitigating the chance of any uncontrolled increase to risk levels. This growth sees Hobart warranting the services that are applied in locations like Gold Coast and Canberra and this airspace review presents itself as an opportune time to do so.

1.3 Proposal

YMHB has continued to exceed the Class C airspace review criteria threshold for passenger numbers, listed in the Australian Airspace Policy Statement 2018 (Table 1), since the last airspace review undertaken in 2017. Currently it exceeds the 1 million passenger trigger by more than 1.7 million passengers at 2.7 million.

To ensure there are no impacts on safety at Hobart, this proposal seeks to proactively address any chance that unmitigated growth could have on safety.

To achieve this, Airservices proposes changes to the aerodrome, approach and airspace system to provide a capability to deliver a Class C aerodrome and a Class C approach service at YMHB and surrounding airspace.

Under this proposal, YCBG will remain an uncontrolled aerodrome, with the addition of a class C approach service provided to aircraft arriving and departing the aerodrome.

The solution includes the capability to provide Terminal Control Area (TMA) surveillance separation standards for the approach service and associated tower with the use of ADS-B surveillance. This will enable the most efficient and safe service to all airspace users at YMHB and surrounding Class C terminal airspace. See Table 4 for summary of benefits.

Note:

- This recommendation is limited to a proposal to change airspace classification and does not need to propose changes to flight paths including Standard Instrument Departures (SIDs) and Standard Instrument Arrival (STARs) as they will have already been implemented before commencement of this proposal.
- Since CASA has announced the review of Hobart airspace, Airservices has removed Hobart from the current Tranche 3 AMP proposal in favour of contributing feedback with other industry members into the airspace review.

2 Policy and Strategic Direction

2.1 Government Policy

The Australian Airspace Policy 2018 (the policy) section 8, states that the administration of Australian administered airspace:

1. shall be in the best interests of Australia
2. shall consider the current and futures needs of the Australian aviation industry
3. shall consider cost implications for all airspace users
4. shall consider adopting proven international best practice airspace systems adapted to benefit Australia's aviation environment
5. shall take advantage of advances in technology wherever practicable.

The policy also states also that:

a. the Government considers the safety of passenger transport services as the first priority in airspace administration.
b. airspace administration should also seek to deliver good safety outcomes to all aviation participants.

Consistent with the Government's 2018 Australian Airspace Policy Statement (AAPS) and the Minister's Statement of Expectations, Airservices has been considering options to enhance the safety and efficiency of Australian controlled airspace.

To help determine when changes to airspace classification may be required in the airspace immediately around an aerodrome, (referred to as the control zone (CTR) at a controlled aerodrome) the following criteria are used: annual passenger transport operations (PTO) aircraft movements, the annual number of passengers and total annual aircraft movements (Table 1).

When annual traffic levels at an aerodrome meet a threshold of any one of the criteria CASA should complete an aeronautical risk review in consultation with the public, industry and other government agencies.

Table 1 AAPS Airspace Classification Review Triggers for Aerodromes

	Class B	Class C	Class D
Service provided	ATC	ATC	ATC
Total annual aircraft movements	750,000	400,000	80,000
Total annual PTO aircraft movements	250,000	30,000	15,000
Total annual PTO passengers	25 million	1 million	350,000

2.2 Airservices strategic direction

Airservices has a requirement to foster and promote civil aviation. To fulfil our role in the management of Australian airspace in accordance with the Government's AAPS, we are required to, among other considerations, consider the safety of air navigation,

the current and future needs of the aviation industry and take advantage of technologies wherever practicable. The Airservices Corporate Plan 2018-2019 identified we would work with CASA to standardise the services provided in both Class A and Class E airspace across Australia, increasing consistency for airspace users during this period.

More broadly, air traffic management in Australia is evolving and Airservices is enhancing our services provided to airspace users. By 2025, we will have implemented the Civil Military Air Traffic System (CMATS), Long Range Air Traffic Flow Management (LR-ATFM), Airport Collaborative Decision Making (A-CDM), increased use of ADS-B and User Preferred Routes (UPRs) and introduced a single Flight Information Data Region.

Within the regional airspace environment, changes are needed to the airspace architecture to enable the delivery of benefits for airspace users.

Continually upgrading and enhancing surveillance separation services, by proposing a Class C aerodrome and approach service for YMHB, is consistent with our strategic direction and meets the Government's expectations as outlined in section 2.1.

Additionally the proposal meets the following Airservices AMP Change Principles (CP) and desired Service Outcomes (SO) which are applied to all change proposals:

Change principles

CP1 Controlled airspace should be provided at a class of airspace commensurate with the risk and equitable access for the area (see Table 4 - safety and value to industry).

CP2 There should be national consistency and standardisation of airspace and procedures to reduce complexity for air traffic controllers and pilots and enhance service resilience (see Table 4 - efficiency).

CP3 The class of airspace should leverage the implementation of Air Traffic Management (ATM) technologies to improve safety, mitigate risk and enhance access for all airspace users (Table 4 - safety, efficiency and value to industry).

CP4 Airspace design should facilitate the delivery of surveillance services and enhanced communication channels where the capability exists (see Table 4 - general benefits).

Service Outcomes

SO1 Ensure the safety of air navigation is the most important consideration while fostering and promoting civil aviation.

SO2 Provide a predictable, efficient and effective service to the aviation industry.

SO3 Innovate for airspace user value aligned with global industry expectations.

3 Hobart

Hobart is the main aviation gateway for southern Tasmania and is the eleventh busiest controlled aerodrome (from a passenger number perspective) in Australia. The aerodrome is currently classed as a Class D regional service. Air Traffic Controllers (ATC) provide aerodrome control services for the manoeuvring areas (taxiways and runway) and approach services (procedural/non-surveillance) for the Class D airspace from the surface to 4,500ft Above Mean Sea Level (AMSL). Instrument Flight Rules (IFR) aircraft are separated from other IFR aircraft, Special Visual Flight Rules (SVFR) aircraft and are provided with traffic information on Visual Flight Rules (VFR) aircraft.

The Tower also provides services for YCBG which is an independent non-certified aerodrome 1NM from YMHB. YCBG traffic is considered in the mix of movements with YMHB. There is significant growth at both aerodromes in both total movements and passenger numbers.

3.1 Current Class of Airspace at YMHB

During tower hours (Figure 1), YMHB Class D CTR is active from ground up to and including 4,500 ft Above Mean Sea Level (AMSL). Above 4,500 ft, Melbourne Centre Enroute Controllers manage Class C airspace.

Out of tower hours (Figure 2), Class D airspace changes to a base of 1,500 ft AMSL up to and including 4,500 ft. This airspace is managed by Melbourne Centre Surveillance Approach Controllers and Class C above is managed by Melbourne Centre Enroute Controllers. At 1,500 ft to ground, Class D airspace is deactivated, reverts to Class G airspace and YMHB operates on Common Traffic Advisory Frequency (CTAF) procedures.

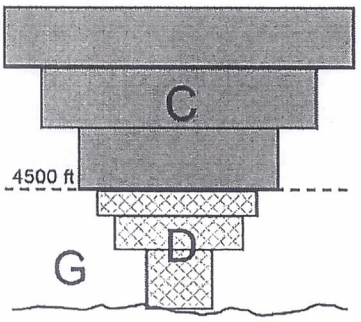

Figure 1 Tower open (current)

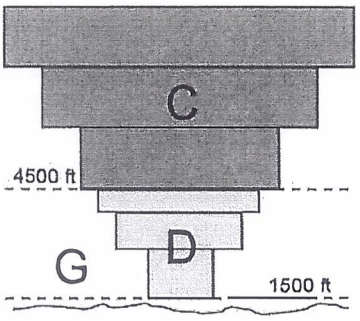

Figure 2 Tower closed (current)

3.2 Aircraft Movements

Table 2 Airspace Research Application (ARA) YMHB/YCBG data for November 2017 to December 2018

December 2018 Movements	December 2018 Air Transport Movements (ATM)	December 2018 Passenger Count	November 2017 Movements	November 2017 ATM	November 2017 Passenger Count
58,780	26,158	2,717,660	49,634	25,167	2,540,423

Table 2 shows that in the 12 months from November 2017 to December 2018, the total movements at YMHB/YCBG have increased by 9,164 (18.5 %) ATM by 991 movements (3.9%) and passenger numbers have increased by approximately 117,237 (7%).

YMHB/YCBG has exceeded the passenger number by 270% and for a risk assessment for a Class C aerodrome and is at 87% of the total movements for the same assessment.

3.3 Ratio of VFR to IFR Aircraft

Table 3 shows the comparison ratio of IFR and VFR movements for YMHB and YCBG. The statistics were retrieved from the Airservices Operational Data Warehouse (ODW) for the 12 months from April 2018 to April 2019.

The ratios demonstrate a converse relationship between IFR and VFR when each aerodrome is considered in isolation and a more even split when considered together.

In the proposed Class C airspace, VFR aircraft operating from YCBG will be visually separated from IFR aircraft by YMHB tower controllers within their area of responsibility. If Visual Meteorological Conditions (VMC) are below the minimum for VFR operations, the tower will have the ability to separate IFR and SVFR aircraft from each other.

Table 3 Ratio of IFR and VFR movements at YMHB and YCBG from April 2018 to April 2019

Operations	YMHB	YCBG	Combined
IFR (total movements)	22,400	560	22,960
VFR (arrival/departure)	5,600	13,800	19,400
VFR circuits	1,644	12,301	13,945
VFR (total movements)	7,244	26,101	33,345
RATIO IFR to VFR	3.1:1	0.02:1	0.7:1

4 Proposed Airspace Model

Figure 3 shows the airspace classification changes to a Class C CTR for YMHB Tower and the jurisdiction of approach control in a Class C TMA (Hobart (HB) Approach CTA C2, C3, C4 and C5). There is no change to the design of the CTA steps and CTR.

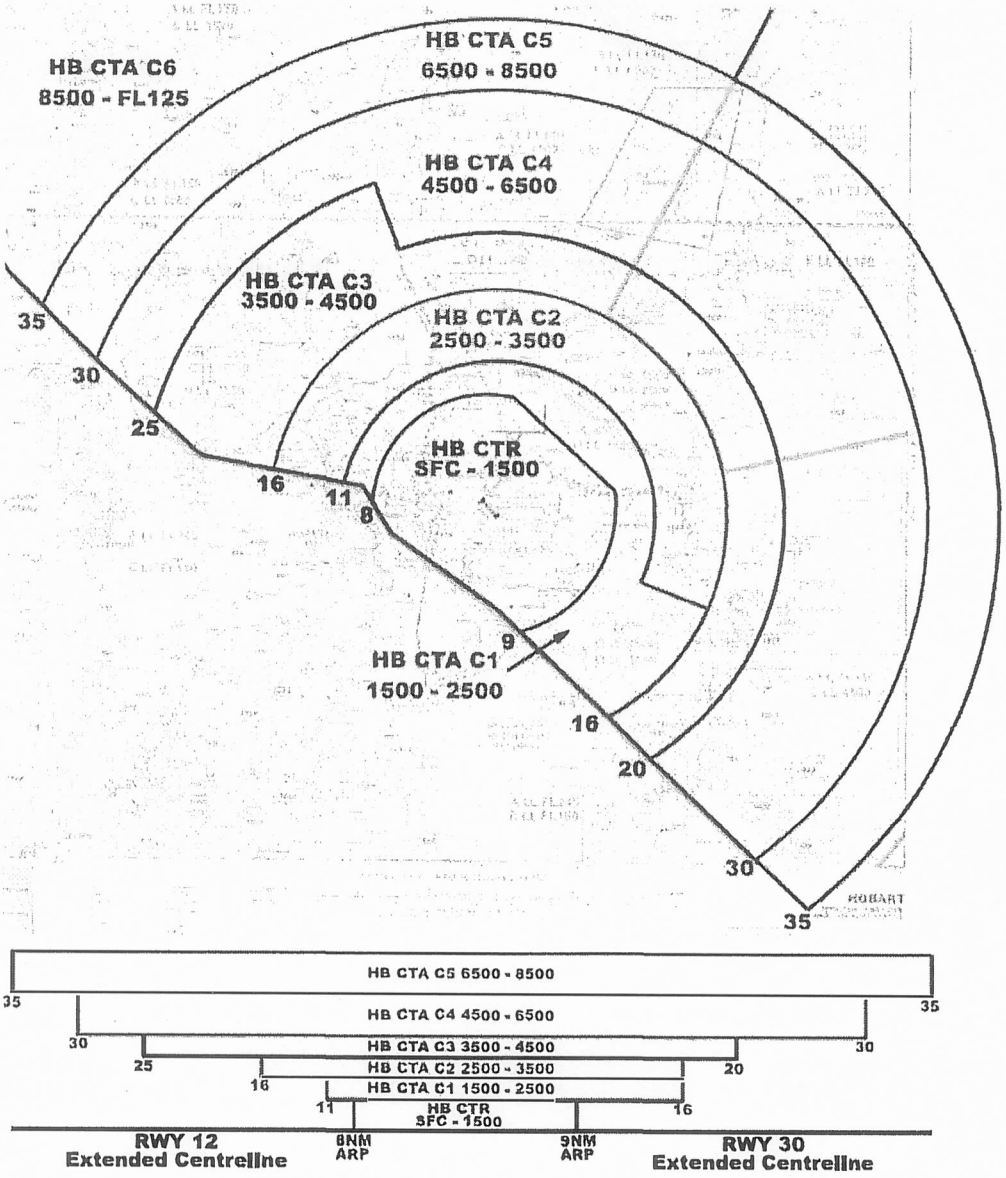

Figure 3 Proposed YMHB Class C CTR and CTA

During tower hours (Figure 4) YMHB Class C CTR is active from ground, up to and including 2500 ft AMSL. Above 2500 ft, YMHB Approach Controllers will manage Class C TMA airspace to Flight Level 245 (FL245) to a radius of 35 NM from the aerodrome reference point.

Out of tower hours (Figure 5) the YMHB CTR and YMHB Approach Class C airspace is deactivated from 4,500 ft to the ground and reverts to Class G airspace. YMHB operates on CTAF procedures.

Above 4500 ft, Melbourne Centre Enroute Controllers will manage Class C airspace.

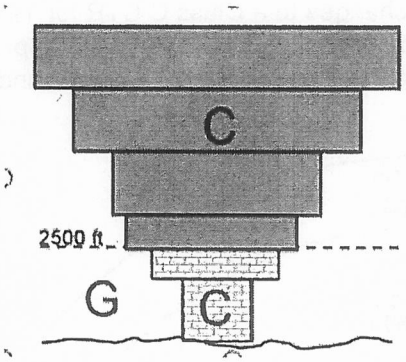

Figure 4 Tower open (proposed)

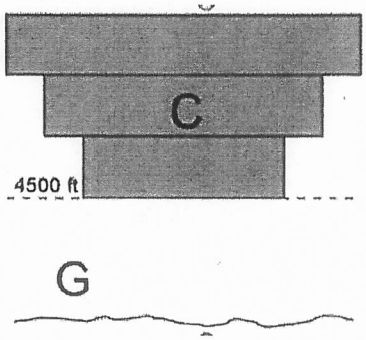

Figure 5 Tower Closed (proposed)

5 Benefits

Table 4 Benefits table for Class C aerodrome and approach services at YMHB

General Benefit	Safety Benefit	Efficiency Benefit	Value to Industry	Environmental Benefit	Meets AAPS 2018
ATC surveillance separation and sequencing for IFR to IFR and VFR aircraft	1. Increased safety for airspace users through the provision of surveillance separation and monitoring by both the tower and approach controllers 2. Provides more effective monitoring of procedural SID/STAR separation and improved detection of, and response to, safety-critical deviations and breaches 3. Provides enhanced protection against Controlled Flight Into Terrain (CFIT) through surveillance monitoring and Minimum Safe Altitude Warning (MSAW) alerting 4. Enables enhanced emergency response and options – e.g. Radar Terrain Clearance Charts (RTCC) are far more flexible than Minimum Safe Altitudes (MSA) which provides options for navigation by Air Traffic Control (ATC) (i.e. vectoring)	1. Alleviates a number of the current enroute/tower interface and separation constraints with procedural standards when compared with surveillance standards at YMHB by: a. Enhances management of missed approaches b. Separation of SID/STAR traffic with non-SID/STAR traffic; c. Provides reduced separation standards for IFR aircraft 2. Facilitates ATC efficiencies by enabling the Aerodrome Controller to manage less airspace and focus on managing the movements on the runways at YMHB and YCBG.	1. Allows surveillance control techniques to produce efficiencies when aircraft of varying performance characteristics arrive simultaneously at YMHB and YCBG 2. Improves flexibility in control techniques following missed approaches at YMHB that can cause significant delays to other aircraft 3. Improves efficiency of Tasmanian traffic flow, reducing delays and therefore costs to industry by permitting less restrictive separation standards 4. More flexibility to provide service to essential first responder services such as police, fire-fighting, medical emergency evacuation flights 5. Facilitates the introduction of the capacity to conduct flight training in an approach environment, adding benefit to the flight training community, and increasing local pilot capability. 5. Provides safety and efficiency benefits whilst ensuring equitable access for all airspace users.	Changing the aerodrome classification to Class C with a class C TMA, will not increase aircraft noise from current levels.	1,2,3,4,5

6 Classes of Airspace

Table 5 describes the three classes of airspace and the services that apply for this document.

The traffic density, mix of aircraft operations and passenger numbers have prescribed triggers for airspace reviews to determine the airspace classification for the aerodrome and surrounding CTR and TMA (Table 1).

Table 5 Classes of airspace and services provided by ATC

Class	Description	Summary of Services
C	Controlled airspace within high PTO traffic density and high PTO passenger numbers at aerodromes and associated CTR, TMA and CTA steps	IFR are separated from IFR, VFR and SVFR by ATC VFR receives traffic information on other VFR (not separated by ATC)
D	Controlled airspace within medium PTO traffic density and medium PTO passenger numbers at aerodromes and associated CTR, TMA at towered metropolitan aerodromes and regional towered aerodromes such as Bankstown, Jandakot, Archerfield, Tamworth, Mackay etc.	IFR are separated from IFR, SVFR and are provided with traffic information on VFR VFR receives traffic information on all other aircraft (not separated by ATC)
G	Non-controlled airspace	IFR receive a Flight Information Service (FIS) including Directed Traffic Information (DTI) on other IFR VFR receive a FIS (on request and ATC workload permitting, and a Surveillance Information Service (SIS) within surveillance coverage and ATC workload permitting.

Appendix A Definitions

Term	Definition
AAPS	Australian Aviation Policy Statement
A-CDM	Airport – Collaborative Decision Making
ACP	Airspace Change Proposal
ADS-B	Automatic Dependent Surveillance – Broadcast
AMP	Airspace Modernisation Program
AMSL	Above Mean Sea Level
ARA	Airspace Research Application
ATC	Air Traffic Control (Controller)
ATM	Air Traffic Management
ATSC	Air Traffic Control Centre
CASA	Civil Aviation Safety Authority
CMATS	Civil Military Air Traffic System
CP	Change Principle
CTAF	Common Traffic Advisory Frequency
DTI	Directed Traffic Information
FIS	Flight Information Service
FL	Flight Level (standard level above the transition level (10,000 ft) referenced to a standard altimeter setting of 1013.2
ft	feet
HB	Hobart (referenced to a navigation aid at the aerodrome)
IFR	Instrument Flight Rules
LR-ATFM	Long Range – Air Traffic Flow Management
NM	nautical miles
ODW	Operational Data Warehouse
PTO	Passenger Transport Operations
SID	Standard Instrument Departure
SIS	Surveillance Information Service
SO	Service Outcomes
STAR	Standard Instrument Arrival
SVFR	Special Visual Flight Rules
TMA	Terminal Control Area
UPR	User Preferred Routes
VFR	Visual Flight Rules
YCBG	Cambridge Aerodrome
YMHB	Hobart Aerodrome

Appendix B References

Title	Reference / Version etc.	Link
Airservices Corporate Plan	2018-2019	http://www.airservicesaustralia.com/publications/corporate-publications/strategic-planning/2018-19-corporate-plan/
Australian Airspace Policy Statement	25 September 2018	https://www.legislation.gov.au/Details/F2018L01386